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(71) Applicant: **BIOACTIVA MICROTECHNE** [PA/US]; 9420 Troon Village Drive, Lonetree, CO 80124 (US).

(72) Inventor: **EBNER, Raquel, Alvarez**; Puerto Raul Marin Balmeceda, Aysen (CL).

(74) Agents: **KOVARIK, Joseph, E.** et al.; Sheridan Ross P.C., Suite 1200, 1560 Broadway, Denver, CO 80202-5141 (US).

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(54) Title: CANELO PRODUCTS AND METHODS OF MAKING AND USING SAME

(57) Abstract: Extracts of the Canelo tree are prepared and used to cleanse wounds, to act as an anti-rheumatic, anti-ulceretic, to eliminate body odors, treat chronic infections, as a natural flavor extract, as a pest repellancy agent and as a phyto nutrient. Such extract has therapeutic uses including the treatment of pancreatic cancer and the treatment of fungal, yeast and bacterial infections. The significant concentrations of bioflavinoids in Canelo tree extract makes such extract particularly useful in the maintenance of normal blood vessel conditions and as a protectorant of capillaries. A synergistic effect is apparent in a mixture of ascorbic acid and Canelo tree extract. Canelo tree extract also contains Sesamin and is therefore useful as an insect repellant, particularly when incorporated into building materials to protect such materials against undesired infestation by insects.

CANELO PRODUCTS AND METHODS OF MAKING AND USING SAME

FIELD OF THE INVENTION

The present invention is directed to Canelo products and methods for making and using such products. In particular, the present invention is directed to formulations containing extracts derived from the Canelo tree for use as a cleanser, an anti-fungal, anti-yeast and antibacterial agent, as a treatment for toothaches, as a diuretic, as a treatment for vitamin C deficiency, as a hair coloring agent, as an agent to treat acne and ulcers, and as an antipyretic and a pain reducer.

BACKGROUND OF THE INVENTION

The Canelo tree, also known as Winters bark, and formally known as Drymis Winteri, was first discovered by John Winter, a surgeon on the 1576 expedition of Sr. Francis Drake, as a treatment for scurvy. The bark was exported to Europe and named Cortex Winteri as a medicinal antiscrubutan until the late 1800s. In 1956, studies were made resulting in findings that Canelo bark has high concentrations of Vitamin C, tanines, and an oil containing sesquiterpenic lactones and flavonoids. The tree is sacred to the Araucanian Indians and is used in religious ceremonies. The tree itself is a large hardwood that can grow to over 30 feet in height with a trunk diameter exceeding three feet. Its leaves are shiny green on their top side and grayish green on their underside with very aromatic white flowers and small oval black fruits. It is believed that the tree is limited in its geographic locations and is presently found only in southern Chile in a small portion of Argentina.

SUMMARY OF THE INVENTION

One aspect of the present invention relates to the use of Canelo a tree extracts to treat one or more of the following conditions: cleansing of wounds, anti-rheumatic, antiulceretic; elimination of body odors; treatment for chronic infections, in vitro affects against staphylococcus aureus and as a disinfectant. Another aspect of the present invention is the use of extracts from the Canelo tree and formulations for one or more of the following: cosmetics; phytonutrients, natural flavor extracts; and pest repellancy agents.

The present inventor has found that the antiseptic and antibacterial properties of Canelo tree extracts are greater than those of tea tree oil. Moreover, the present inventor has

also appreciated that Canelo tree extract also contains bioflavonoids, natural antioxidants and anticarcinogenic properties and therefore, various formulations encompassed by the present invention provide various therapeutic uses.

The present inventor has discovered that formulations of Canelo extract have a significant allomonal biological activity, providing a defense against predators. Thus, one use of the present invention relates to a natural insecticide and pest repellant for use directly in liquid and pellet form, as well as incorporating such material into fiber boards and other building materials for protection against infestation.

Still other aspects of the present invention are the use of compositions comprising Canelo tree extracts which take advantage of such extracts antibacterial activity, antiseptic properties for external bleeding, and for veterinary use for animal skin allergies. When used as a treatment for skin allergies, various irritants naturally found in Canelo tree oil are preferably reduced, diluted and/or eliminated. Yet another use of the present invention is as an emollient for softening skin tissue and to retain moisture in desired tissue. Body cleansers and deodorants comprising extracts from the Canelo tree provide a fresh aroma, as well as a tingly feeling on human skin, thus finding applications as after shower tonics and lotions.

Still further applications of the present invention relate to flavor and perfume uses.

When ingested, extracts from the Canelo tree can also be used to treat various types of fungal, yeast and bacterial infections, and in particular, can be used as an antiulceretic. As a medicinal component, extracts from Canelo tree oil can be used to inhibit certain types of pancreatic cancer.

Extracts from the Canelo tree can be obtained through straightforward distillation processes, but may also be obtained using pressure based processees.

While not bound by theory, it is believed that particular extracts from the Canelo tree contain significant concentrations of the bioflavonoids quercetin and luteolin (which contribute to the maintenance of normal blood vessel conditions by decreasing capillary permeability and fragility, thus finding therapeutic use as a capillary protectant), and furthermore, such bioflavonoids appear to have a synergistic effect with ascorbic acid. Thus, another aspect of the present invention relates to a combination of Canelo tree extract and ascorbic acid.

Another component of Canelo tree extract is Sesamin, believed to have insecticide characteristics and thus, useful in formulating natural products to act as an insect repellant. Such products have a strong allamonal biologic like activity with an inhibition zone of at least about 21 to 30 millimeters, making it useful as a natural industrial insecticide and pest repellant. A GC/MS analysis of oils present in Canelo bark identify the following compounds: α-Pinene; β-Pinene; γ-3-Carene; Limonene, Linalool, β-Caryophyllene; α-Humulene; β-Himachalene; α-Terpineol; trans-β-Farnesene; α-Beramotene, Benezene; Farnesol; Elemol; β-Bisabolene; γ-Maaliene; Calarene; Eudesmol; β-Eudesmol; Driminol.

Extracts of the Canelo tree are useful as natural antioxidants and thus, useful in the production of natural products for preserving foods. Finally, particular formulations of the present invention comprise extracts from the Canelo tree which find various applications as a cleanser, an anti-fungal, anti-yeast and antibacterial agent, as a treatment for toothaches, as a diuretic, as a treatment for vitamin C deficiency, as a hair coloring agent, as an agent to treat acne and ulcers, and as an antipyretic and a pain reducer

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Chemical Extraction of Drimys Winteri (Canelo) Procedure

An extraction was carried out with ethanol (2x5L) on 2 kg of Canelo leaves using a filter. The mixture was distilled to dryness, giving 430 g of product, to which was added hot water to give a precipitate of lipids and chlorophyll. The precipitate was filtered and the aqueous solution was extracted with chloroform using a separation funnel. This solution was distilled to dryness, which gave the chloroform extract. Then, on a second extraction, ethyl acetate was added to the aqueous solution left behind in the separation funnel to give the ethyl acetate extract. Finally, the remaining of the aqueous solution was extracted with amyl alcohol, giving the amyl extract.

Chloroform Extract: This extract was subjected to silica gel column chromatography, using solvents with increasing polarities, allowing us to isolate and identify the following sesquiterpenic lactones.

With respect to the procedures for extracting particular components from the bark of Canelo trees, steam distillation processees and solvent an extraction of young tree bark and old tree bark was performed. 28.5Kg of "young" tee bark and 27.0 Kg of thick "old" tree bark were used in the following below described processees.

Method:

Steam distillation:

About 200 grams of each bark type, cut to an accommodating size (~ 0.5 in^2), were placed in a 3-L round bottom flask. About 1.5-L of DI H_2O was added, enough to cover the bark. The water was boiled overnight (19 hours for the young bark and 16 hours for the old bark) and the steam distillate was collected in an apparatus suitable to collect oils lighter than water.

The oil was removed by pipette and analyzed by gas chromatography (GC) and gas chromatography–mass spectrometry (GC/MS).

Soxhlet extractions with hexane, ethyl acetate and methanol:

Old bark

About 200 grams of bark was loaded into a large soxhlet and 3-L of hexane added to the 5-L flask. The soxhlet extraction lasted for 8.0 hours and the hexane extract was evaporated to a greenish golden oil yielding 10.9 grams solids. The same bark was extracted again using 3-L of ethyl acetate for 7.5 hours. The ethyl acetate extract was evaporated to a dark yellow solid and yielded 9.0 grams. The same bark was extracted a third time using 3-L of methanol for 27.5 hours. The methanol extract was evaporated to a light brown solid yielding 27.5 grams.

Young Bark

About 200 grams of bark was loaded into a large soxhlet and 3-L of hexane added to the 5-L flask. The soxhlet extraction ran for 7.5 hours and the hexane extraction was evaporated to a yellow/green oil yielding 8.87 grams solids. The same bark was then extracted using 3-L of ethyl acetate for 8.5 hours. The ethyl acetate extract was evaporated to a yellow/green solid yielding 9.8 grams. The same bark was extracted a third time using 3-L of methanol extracting for 22.25 hours. The methanol extract was evaporated to a brown green solid and yielded 20.97 grams.

Materials/ Apparatus:

Oil lighter than water collection apparatus: collects up to 30 ml

Large Soxhlet apparatus w/ 5-L flask

Starting material: Canelo bark, *Drymis Winteri Forst*;

Young bark	28.5 Kg (dry wt.)
Old bark	27.0 Kg

Solvents:

DI water
Hexanes -reagent grade
Ethyl acetate -reagent grade
Methanol -technical grade

Analytical:

GC:

Equipment: Varian star 3400
Method: Oils were analyzed on both polar and non-polar columns, injected neat.

GC/MS:

Equipment: Hewlett Packard 5971A, HP5890-GC
Library: NBS and Wiley
Method: Oils analyzed on a polar column at 1:100 and 1:1000 dilutions.

Results:

1) Steam distillate of Canelo bark:
Starting material: 200 grams of each bark type.

	Yield	% Yield (w/w)
Young bark	2.40 g / 2.7 ml	1.2%
Old bark	6.44 g / 7.5 ml	3.2 %

2) Solvent extractions of the Canelo bark:

	Solvent	yield	% yield (w/w)	Appearance
Young bark:				
	Hexane	8.87 grams	4.4 %	yellow green oil
	Ethyl acetate	9.8 grams	4.9 %	dark tan/green solid
	Methanol	20.97 grams	10.5 %	tan green solid
Old bark:				
	Hexane	10.9 grams	5.5 %	greenish yellow oil
	Ethyl acetate	9.0 grams	3.6 %	dark yellow solids
	Methanol	27.5 grams	13.8 %	light brown solid

Discussion:

The steam distilled oils were analyzed on both polar and non-polar columns on the GC to determine the best method of analysis. (See Fig. 1-4). The polar column gave a better separation.

The polar column was used for analyzing the Canelo oils on the GC/MS. The peak numbers were determined by lowering the sensitivity to 0.25% area abundance. The peaks chosen for identification were all over 0.5% area abundance. These peaks are marked on the GC/MS traces. (See Fig 5-6). Peak identifications were chosen from the libraries listed in the analytical section. Tables 1-3 contain data of the bark constituents along with peak retention times and percent area abundance. The possible uses for the identified compounds have not yet been identified.

The solvent extracts were just completed and the analysis has just begun at this time.

The chemical structures of the identified compounds are shown in Fig. 7.

Attachments:

Fig. 1) GC, old bark, polar column.
Fig. 2) GC, old bark, non-polar column.
Fig. 3) GC, young bark, polar column.
Fig. 4) GC, young bark, non-polar column.
Fig 5) GC/MS traces young bark.
Fig. 6) GC/MS traces old bark.
Fig 7) Chemical structures.
Table 1) Constituents of young bark oil.
Table 2) Constituents of old bark oil.
Table 3) Comparison of bark oils.

Table 1: Constituents of Canelo "young" bark oil

peak #	rt	Area %	compound	Possible uses
1	11.83	9.14	alpha-Pinene	
3	12.83	1.66	beta-Pinene	
6	13.82	8.96	Limonene	
13	17.43	2.13	Linalool	
16	18.35	0.62	unk	
17	18.59	1.39	beta-Caryophyllene	
20	19.20	1.44	1-alpha-Terpineol	
28	22.23	2.31	Farnesol	
30	23.13	14.31	Elemol	
31	23.89	2.26	unk	
32	24.03	2.28	unk	
33	24.21	1.30	unk / MW 216	
34	24.42	5.95	gamma-Maaliene	
35	24.67	0.98	Calarene	
36	24.78	0.50	unk	
39	25.32	12.79	Eudesmol	
40	25.52	10.77	Beta-Eudesmol	
50	31.01	17.66	Driminol	

Table 2: Constituents of Canelo "old" bark oil

peak #	rt	Area %	compound	Possible uses
4	11.79	2.72	alpha-Pinene	
6	12.77	1.81	gamma-3-Carene	
17	17.77	1.20	unk	
18	18.04	9.24	unk	
19	18.19	15.32	unk	
20	18.33	2.00	unk	
21	18.56	3.26	beta-Caryophyllene	
22	18.70	3.62	alpha-Humulene	
23	18.85	2.37	" unk	
24	19.14	8.09	beta-Himachalene	
25	19.49	2.04	trans beta-Farnesene	
26	19.60	5.37	alpha-Bergamotene	
27	19.76	1.17	unk	
28	19.84	7.97	Benzene,1-(1,5.dimethyl-4-hexenyl)-4-Methyl	
33	22.01	0.78	unk	
34	22.18	0.48	unk	
37	33.07	2.30	elemol	
38	23.19	0.55	beta-Bisabolene	
42	23.83	1.11	unk	
43	23.92	6.21	unk	
45	24.17	1.98	beta-Himachalene	
46	24.38	1.23	gamma-Maaliene	
47	24.67	2.33	unk	
49	26.25	0.87	unk	
50	25.46	0.93	beta-Eudesmol	
51	26.92	8.14	unk	
67	30.94	2.75	Driminol	

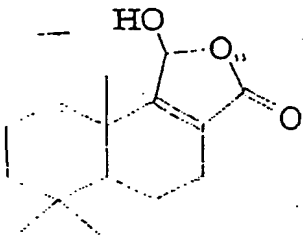
Table 3: Constituent comparison of bark oils.

young bark			old bark			
peak #	rt	Area %	peak #	rt	Area %	Compound
1	11.83	8.14	4	11.79	2.72	alpha-Pinene
3	12.83	1.66	6	12.77	1.81	beta-Pinene/gamma-3-Carene
8	13.82	8.98				Limonene
13	17.43	2.13				Linalool
			17	17.77	1.20	unk
			18	18.04	9.24	unk
			19	18.19	15.32	unk
16	18.35	0.62	20	18.33	2.00	unk
17	18.59	1.39	21	18.58	3.26	beta-Caryophyllene
			22	18.70	3.62	alpha-Humulene
			23	18.85	2.37	unk
			24	19.14	8.09	beta-Himachalene
20	19.20	1.44				1-alpha-Terpineol
			25	19.49	2.04	trans-beta-Famesene
			26	19.60	5.37	alpha-Bergamotene
			27	19.76	1.17	unk
			28	19.94	7.97	Benzene,1-(1,5,dimethyl-4-hexenyl)-4-methyl
			33	22.01	0.78	unk
28	22.23	2.31	34	22.18	0.48	Farsenol/unk
30	23.13	14.31	37	23.07	2.30	Elemol
			38	23.19	0.55	beta-Bisabolene
31	23.89	2.26	42	23.83	1.11	unk
32	24.03	2.28	43	23.92	6.21	unk
33	24.21	1.30	45	24.17	1.98	beta-Himachalene/ mw 218
34	24.42	5.95	46	24.38	1.23	gamma-Masilene
			47	24.67	2.33	unk
35	24.67	0.98				Calarene
36	24.78	0.50				unk
39	25.32	12.79	49	25.25	0.87	Eudesmol/ unk
40	25.52	10.77	50	25.46	0.93	beta-Eudesmol
			51	25.92	8.14	unk
50	31.01	17.66	57	30.94	2.75	Driminol

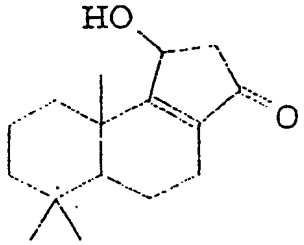
PRELIMINARY REPORT ON THE CHEMICAL EXTRACTION OF *DRIMYS WINTERI* (CANELO)

PROCEDURE: The extraction was carried out with ethanol (2x5L) on 2 kg of canelo leaves using a filter. The mixture was distilled to dryness, giving 430 g of product, to which we added hot water to give a precipitate of lipids and chlorophyll. The precipitate was filtered and the aqueous solution was extracted with chloroform using a separation funnel. This solution was distilled to dryness, which gave the chloroform extract. Then, on a second extraction, ethyl acetate was added to the aqueous solution left behind in the separation funnel to give the ethyl acetate extract. Finally, the remaining of the aqueous solution was extracted with amyl alcohol, giving the amyl extract.

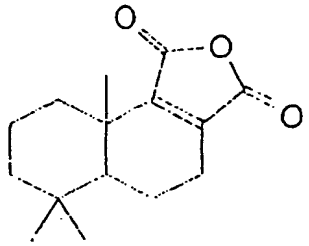
a.- **CHLOROFORM EXTRACT**: This extract was subjected to silica gel column chromatography, using solvents with increasing polarities, allowing us to isolate and identify the following sesquiterpenic lactones:



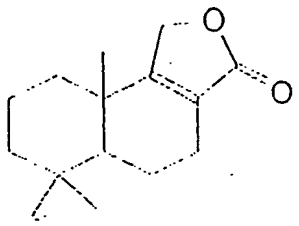
Valdiviolide



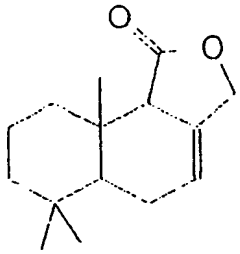
Fuegin



Winterin

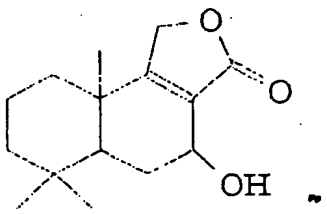


Confertifoline

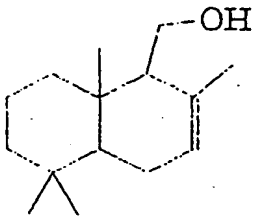


Drimenine

The chloroform extraction of canelo bark gave the following further lactones: futronolide and drimenol.

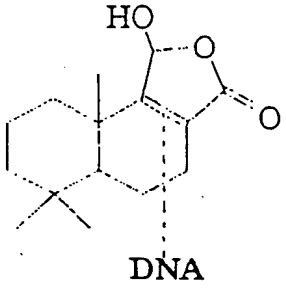


Futronolide



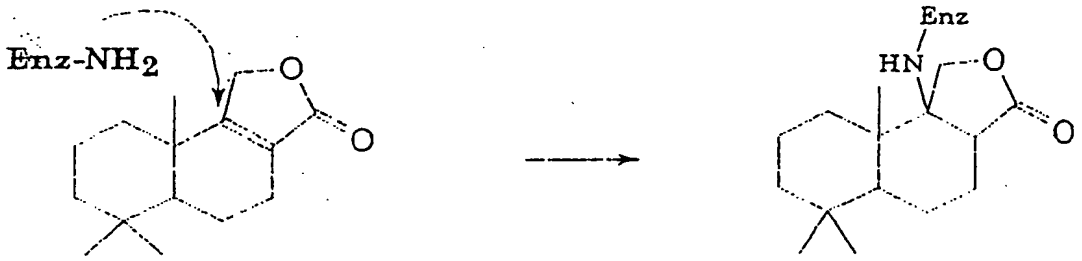
Drimenol

The anticarcinogenic activity found in canelo must be due to Valdiviolide, fuegine, confertifoline and futronolide through DNA blocking *via* π complexes



Valdiviolide-DNA π complex

or by enzyme deactivation of t-RNA aminoacylsynthetase which carries out protein biosynthesis.

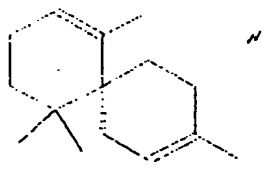


Confertifoline Deactivate Enzime

Since there are no protein synthesis the sick cell dies, as well as healthy ones, but in less quantity.

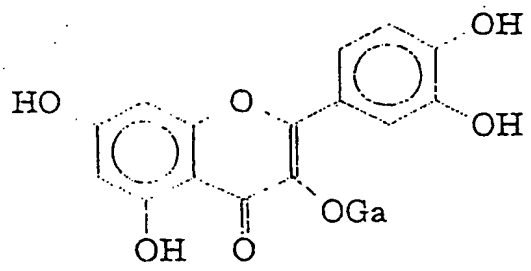
b.- **STEAM DISTILLATION.** Steam distillation of canelo bark allowed the identification of the following sesquiterpenes: drimenol, drimene, valdiviolide, α-chamigrene and a hydrocarbon which we were unable to identify.

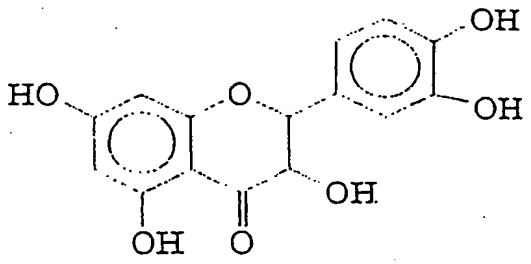
Drimenol found in the oil performs the same function as ethyl alcohol, that is, works as a disinfectant (because it is an alcohol). The feeling of freshness to the skin is due to the oily properties and volatilities of drimene, α-chamigreno and the unknown hydrocarbon. Valdiviolide, also present in the essential oil, has a structure with anticarcinogenic properties and should be repellent to insects.



α-Chamigrene

c.- ETHYL ACETATE EXTRACT: Cellulose column chromatography allowed us to identify the following flavonoids: quercetin-3-O-galactoside and taxifoline.

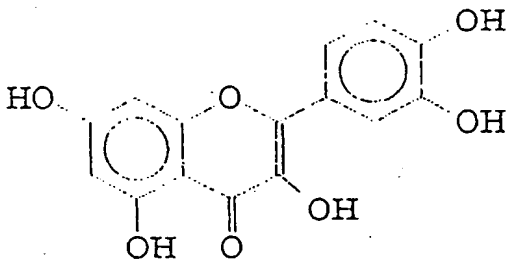


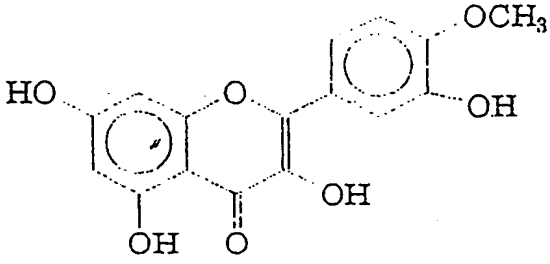


Quercetin-3-O-galactoside Taxifoline

From the application viewpoint the most important of these two flavonoids is taxifoline since it has shown anticarcinogenic activity on P-388 cultures (leufocytic leukemia). Also, taxifoline should show antioxidant activity since when faced to any biological generator of free radicals (like riboflavine), taxifoline will produce hydrogen free radicals which would neutralize the act peroxides coming from atmospheric oxygen.

d.- AMYL EXTRACT: Using cellulose column chromatography we isolated quercetine and isoramnetine, both being flavonoids.





Quercetin Isorhamnetin

No alkaloids whatsoever were found in any of the extractions performed. On the other hand, chromatographic comparison (thin layer chromatography) of the wood and bark extract gave exactly the same result, meaning that both have the same chemical composition.

BIOLOGICAL ACTIVITY: Solutions of chloroform extracted stems and leaves show biological activity on p-388 (linfocitic leukemia) and KB human nasal pharynx carcinome. This activity is thought to be due to the presence of sesquiterpenic lactones as confertifoline, Valdiviolide. etc., which very likely block DNA so that metabolism is inhibited. The canelo allomonal activity (defense against predators) is thought to be due to these compounds. This extract also showed antimicotic activity against Sarcina lutea (+++) and Staphilo coccus aureus (+++).

+ = small inhibition zone of 8-10mm.
++ = inhibition zone of 11-20 mm.
+++ = inhibition zone of 21-30mm.
++++ = inhibition zone bigger than 30mm.

Some Chemical Components found in Drymis Winteri Forst (Canelo)

Structure	Compound	Reference
I	Drimenol	1
II	Drimenin	1
III	Isodrimenin	1
IV	Confertifolin	2
V	Valdiviolide	2
VI	Fueguin	2
VII	Winterin	2
VIII	Futronolide	3,4
IX	Ketal	5

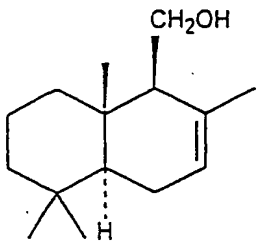
Moreover, the "Canelo" bark extracted with petroleum ether and further elimination of the solvent, was extracted with methanol which was evaporated to dryness, then was subjected to silica gel column chromatography allowing the isolation of:

- drimenin (II)
- drimerol (I)
- sesamin (X) (which acts as insecticide synergistic, skin softener, and veterinary use against animals parasite)
- valdiviolide (V)
- epi-poligodial (XI)
- poligodial (XII)

Further work on the Canelo leaves[9,10] allowed the isolation and identification of:

- a sesquiterpenic lactone: Criptomeridiol.
- and the following flavonoids:
  - Quercetin (XIII) and Luteolin (XIV) (bioflavonoids, which contribute to the maintenance of normal blood vessel conditions by decreasing capillary permeability and fragility. Thus, its therapeutic use as capillary protectant is recommended). It also shows synergistic effect with ascorbic acid.
  - Taxifolin (XV)
  - Quercetrin
  - Cirsimaritin
  - Isorhamnetin (XVII)
  - Astilbin
  - Kamferol
  - Apigenin (XVI)

Chemical Structures



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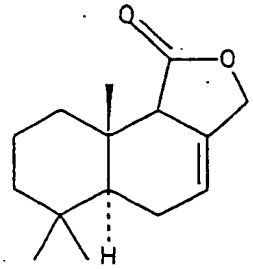

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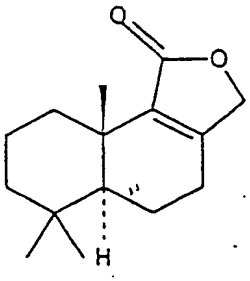

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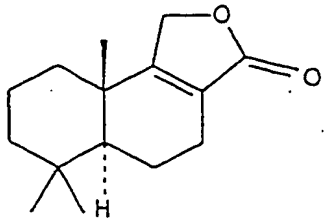

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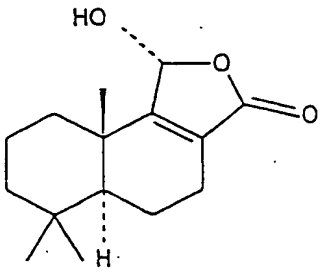

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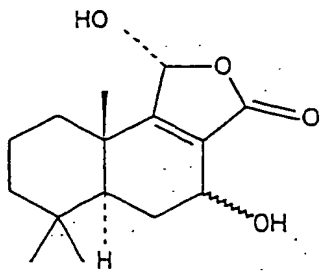

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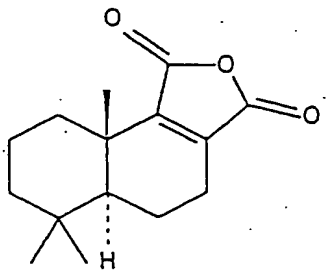

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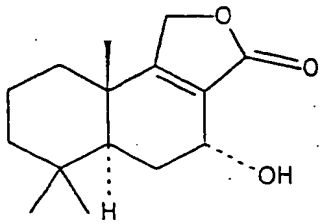

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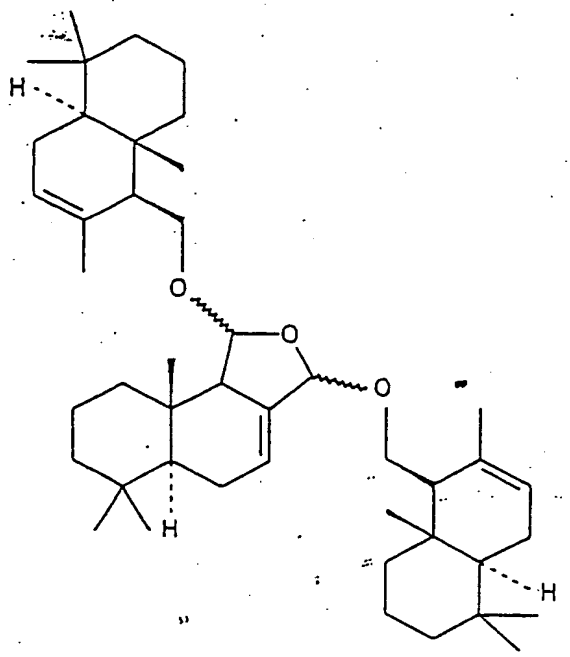

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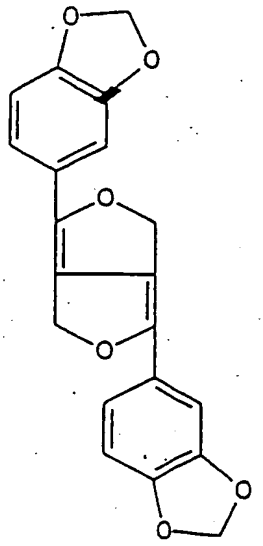

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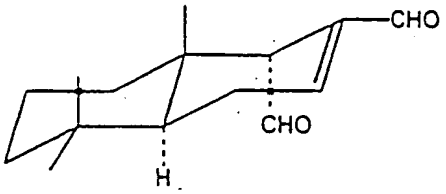

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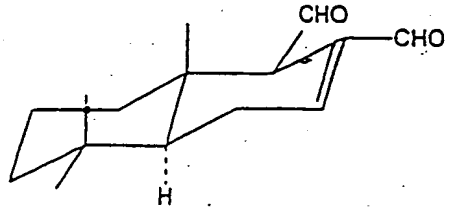

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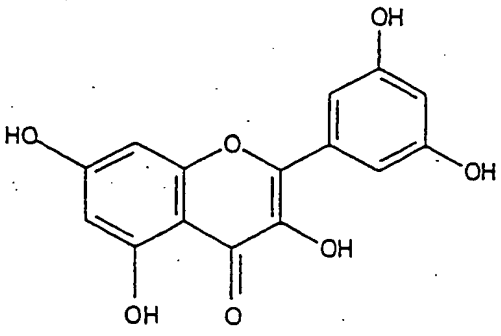

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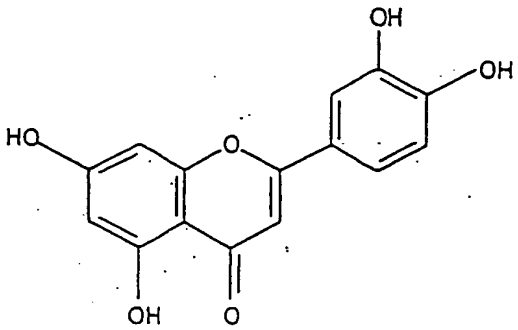

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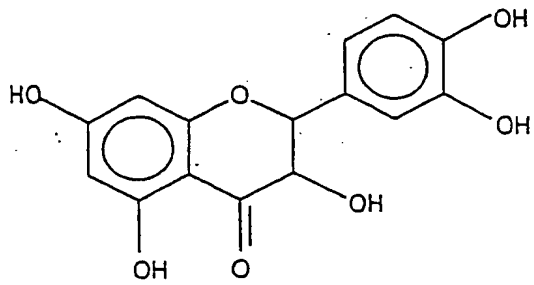

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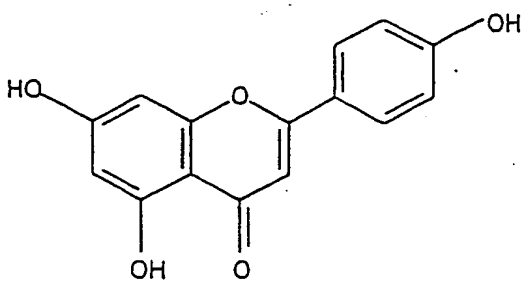

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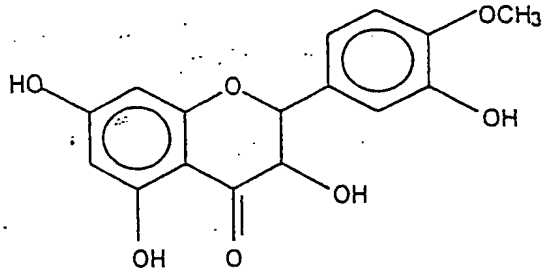


XVII

It has been recently extracted (by steam distillation) canelo oil from canelo bark, and the sample was injected through a chromatographer HP-5690 Series II-Mass detector 5972 with a 25 meter HP ULTRA II column.

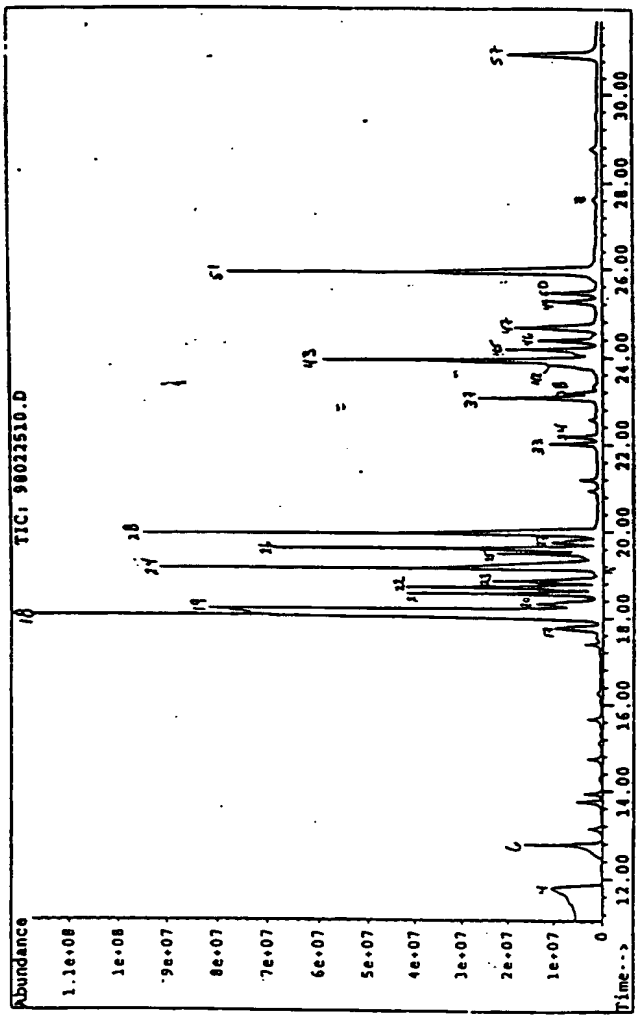
The chromatogram shows two groups of components:

- about 20 chemical components in large proportion,
- and about 60 chemical components in smaller proportions.

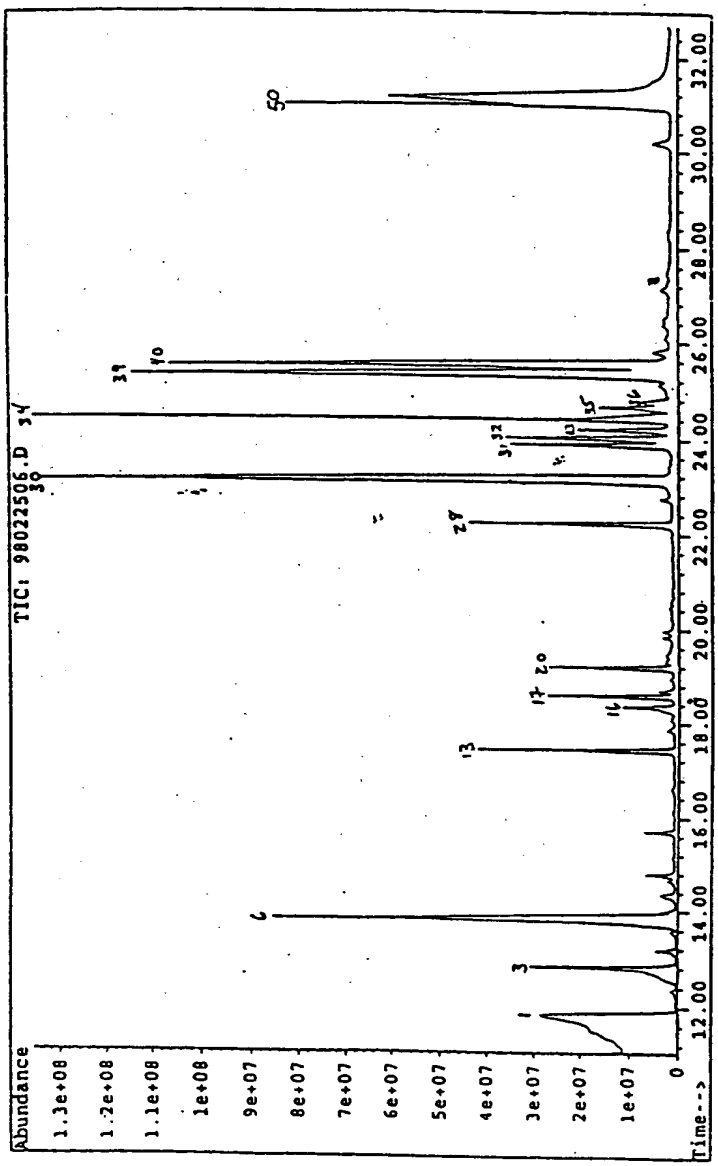
We have also obtained three fractions, namely:
- ethanol extract,
- methanol extract,
- water extract.

Oils/Extracts Yields

	Yield	% Yield (w/w)
Young Bark Oil	2.40 g / 2.7 ml	1.2
Old Bark Oil	6.44 g / 7.5 ml	3.2
Young Bark Extracts		
Hexane	8.87 g	4.4
Ethyl Acetate	9.80 g	4.9
Methanol	20.90 g	10.5
Old Bark Extracts		
Hexane	10.9 g	5.5
Ethyl Acetate	9.0 g	3.6
Methanol	27.5 g	13.8

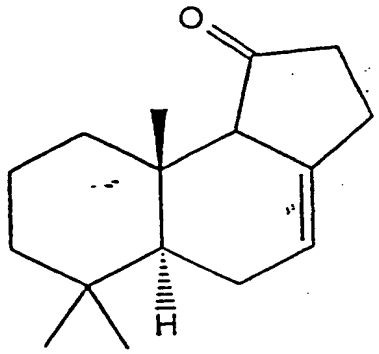


peak #	rt	Area %	compound	Possible uses
4	11.79	2.72	alpha-Pinene	
6	12.77	1.81	gamma-3-Carene	
17	17.77	1.20	unk	
18	18.04	9.24	unk	
19	18.19	15.32	unk	
20	18.33	2.00	unk	
21	18.56	3.26	beta-Caryophyllene	
22	18.70	3.82	alpha-Humulene	
23	18.85	2.37	unk	
24	19.14	8.00	beta-Himachalene	
25	19.49	2.04	trans beta-Farnesene	
26	19.60	6.37	alpha-Bergmotene	
27	19.75	1.17	unk	
28	19.94	7.07	Benzene,1-(1,5-dimethyl-4-hexenyl)-4-Methyl	
33	22.01	0.78	unk	
34	22.16	0.48	unk	
37	33.07	2.30	elemol	
38	23.19	0.65	beta-Bisabolene	
42	23.83	1.11	unk	
43	23.92	6.21	unk	
46	24.17	1.00	beta-Himachalene	
48	24.36	1.23	gamma-Muallene	
47	24.67	2.33	unk	
49	25.25	0.67	unk	
50	25.46	0.93	beta-Eudesmol	
51	25.92	8.14	unk	
57	30.94	2.76	Drimenol	



peak #	rt	Area %	compound	Possible uses
1	11.83	0.14	alpha-Pinene	
3	12.83	1.66	beta-Pinene	
6	13.82	8.96	Limonene	
13	17.43	2.13	Linalool	
16	18.35	0.62	unk	
17	18.68	1.38	beta-Caryophyllene	
20	19.20	1.44	t-alpha-Terpineol	
28	22.23	2.31	Farnesol	
30	23.13	14.31	Elemol	
31	23.89	2.26	unk	
32	24.03	2.28	unk	
33	24.21	1.30	unk / MW 218	
34	24.42	6.85	gamma-Maalene	
35	24.67	0.88	Calarene	
36	24.78	0.50	unk	
39	25.32	12.79	Eudesmol	
40	26.52	10.77	Beta-Eudesmol	
50	31.01	17.66	Drimiol	

Extract	Yield (w/w%)	Major Constituents			
		Retention Time (min)	% Abundance	Mol. Weight	Name/Identity
Hexane	5.5	21.38	82.6	234	"Canelo 1"
		22.61	7.1	426	"Canelo 2"
Ethyl Acetate	3.6	11.95	3.3	412	"Canelo 3"
		19.55	1.1	396	"Canelo 4"
		21.2	50.8	234	"Canelo 1"
		22.6	35.8	426	"Canelo 2"
Methanol	13.8	5.55	8	578	"Canelo 5"
		6.59	7.3	578	"Canelo 6"
		7.35	9.1	290	"Canelo 7"
		15.8	37.5	450	"Canelo 8"



"Canelo 1" = Drimenin

LC/MS Analysis of Young Bark Extracts

Extract	Yield (w/w%)	Major Constituents			
		Retention Time (min)	% Abundance	Mol. Weight	Name/Identity
Hexane	4.4	21.53	82.0	234	"Canelo 1"
		42.27	7.6	368	"Canelo 9"
Ethyl Acetate	4.9	12.29	15.7	412	"Canelo 3"
		20.99	72.5	396, 234	"Canelo 4" "Canelo 1"
Methanol	10.5	5.68	10.9	578	"Canelo 5"
		6.55	16.4	578	"Canelo 6"
		7.37	14.3	290	"Canelo 7"

While various embodiments of the present invention have been described in detail, it is apparent that further modifications and adaptations of the invention will occur to those skilled in the art. However, it is to be expressly understood that such modifications and adaptations are within the spirit and scope of the present invention.

The canelo tree derived products as discussed herein, are also variously referred to as "ushq'tta" and in one embodiment, the present invention utilizes ushq'tta essential oil in various products, including candles, air fresheners, air filters, pest repellants, body deodorants, therapeutic compounds and building materials. To further describe and provide enabling uses of ushq'tta essential oil, the following characteristics are further identified:

- appearance: clear, light yellow, viscous liquid
- boiling point: certain fractions start to boil at 155°C
- stability: stable under ordinary conditions of use and storage

An effective amount of ushq'tta extract for use with any of the applications referred to herein will obviously vary depending upon such applications. In general, however, topical application of an ushq'tta compound is preferably accomplished by using a concentration of at least 1%, more preferably at least 2% and most preferably, at least 5%, with the remaining constituents being suitable emollients, creams, lotions and cleaning agents (e.g., soap, detergents, etc.).

With respect to an application using the ushq'tta extract as a pest repellent agent, similar concentrations as described above are deemed sufficient. In some applications, however, higher strength concentrations, such as at least about 20% of an overall pest repellency agent, consists of ushq'tta extract.

In an application which utilizes the ushq'tta extract as a therapeutic compound in combination with ascorbic acid, preferably at least 10% of such compound comprises ushq'tta extract, more preferably about 25% and most preferably at least about 40%. The amount of ascorbic acid in such formulation is preferably at least about 2%, more preferably at least about 5% and most preferably at least about 8%.

Finally, building materials comprising extracts of ushq'tta have an effective amount of ushq'tta extract so as to act to repel insects. In a preferred embodiment, at least about 1% of a drywall formulation, for example, is comprised of ushq'tta extract, such amount being deemed effective to repel insects. Ushq'tta oil extract can be mixed with plywood and/or

particle board formulations to prevent termites from being attracted thereto, such concentrations being generally in the same range (e.g., at least about 1%, more preferably, at least about 5%, and most preferably, at least about 15%).

What is claimed is:

1. A method for treating chronic infections by administering an effective amount of a compound extracted from a Canelo tree.

2. A pest repellancy agent consisting essentially of Canelo tree extract.

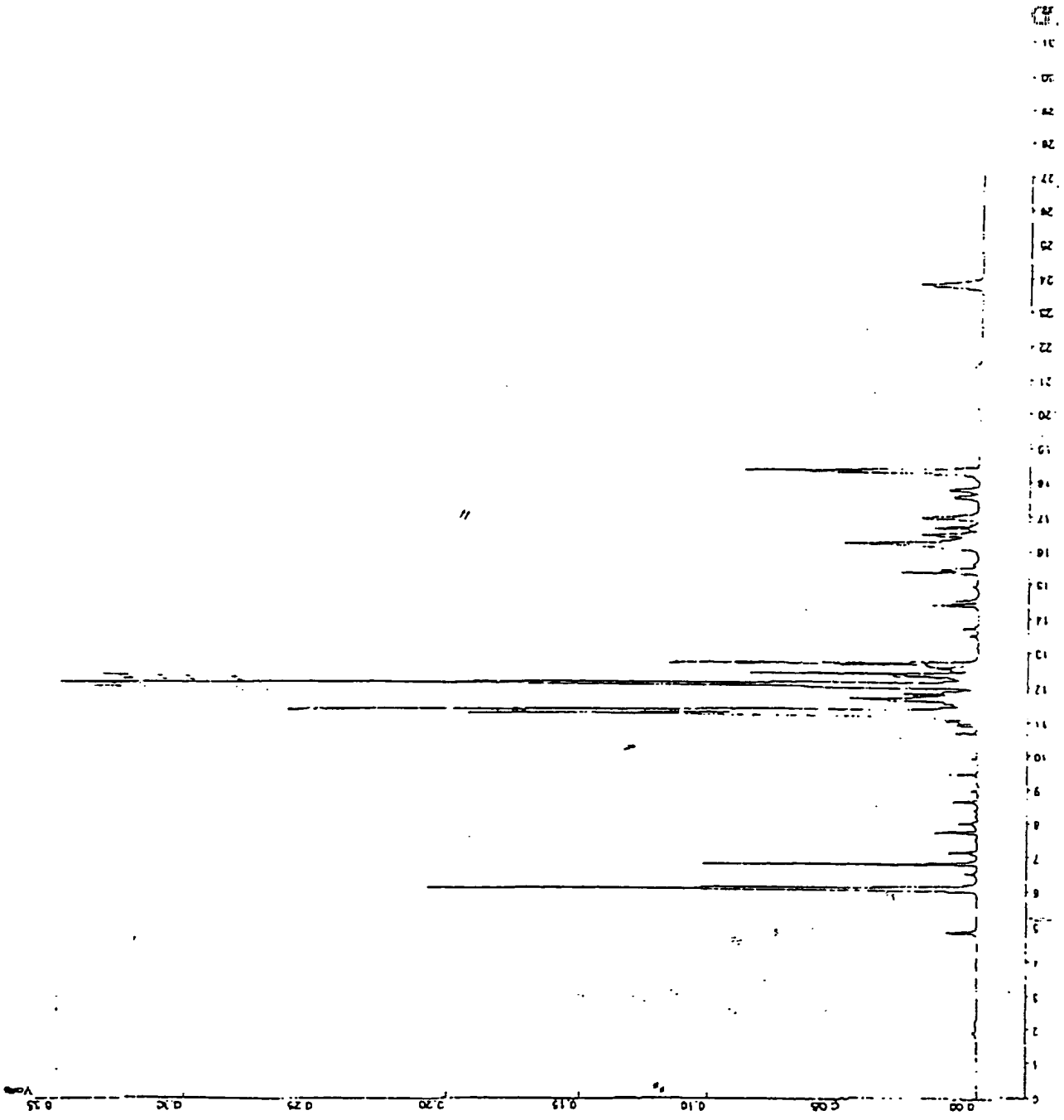
3. An anti-oxidant formulation consisting essentially of Canelo tree extract.

4. A method for treating pancreatic cancer comprising administering an effective amount of Canelo tree oil to a patient.

5. A body deodorant comprising extracts from the Canelo tree.

6. A therapeutic compound comprising an effective amount of Canelo tree extract in combination with ascorbic acid.

7. Building materials comprising extracts derived from a Canelo tree.



PIGURE 1: GC trace of old bark oil, polar column

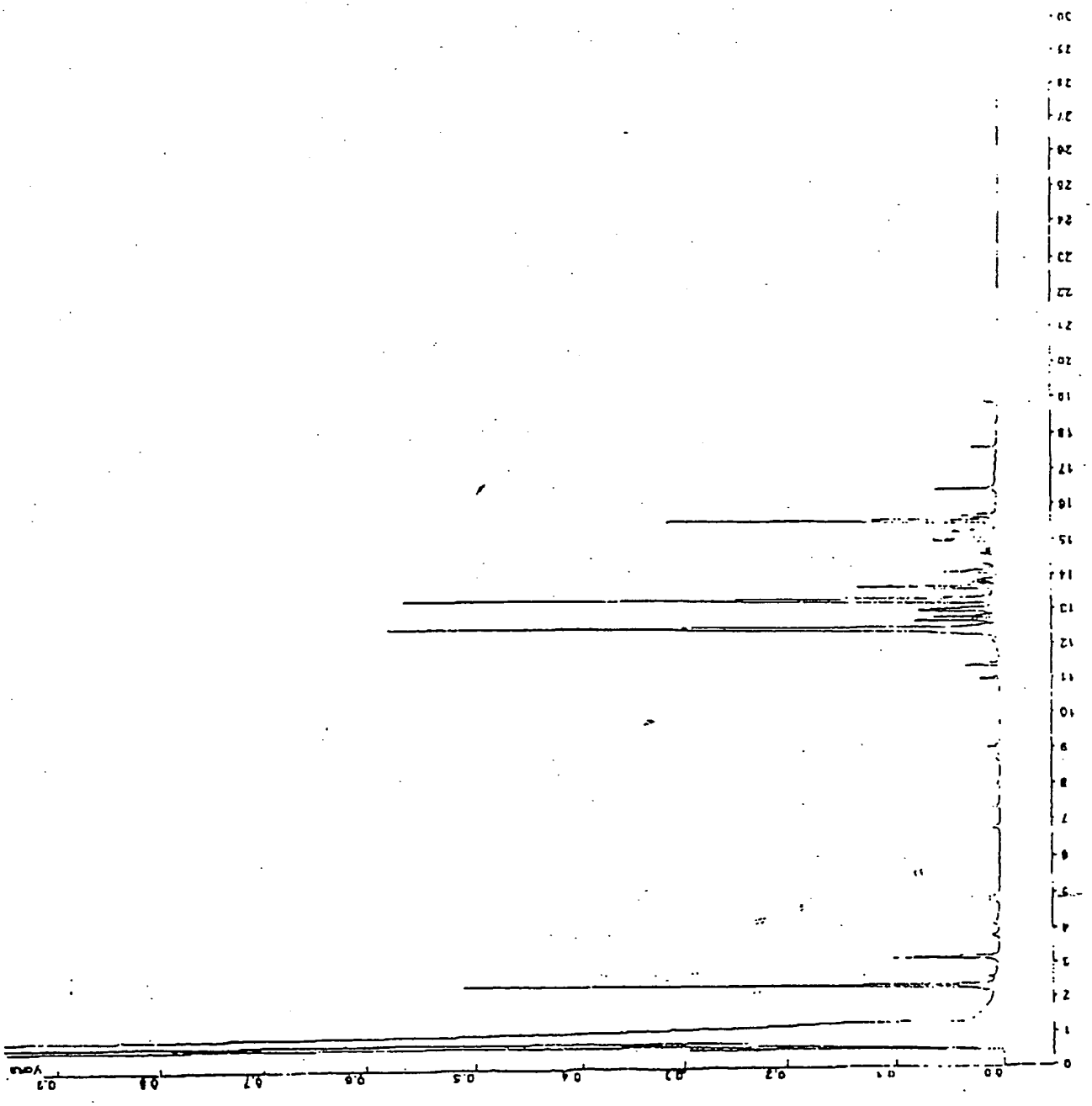


FIGURE 2: GC trace of old bark oil, non-polar column

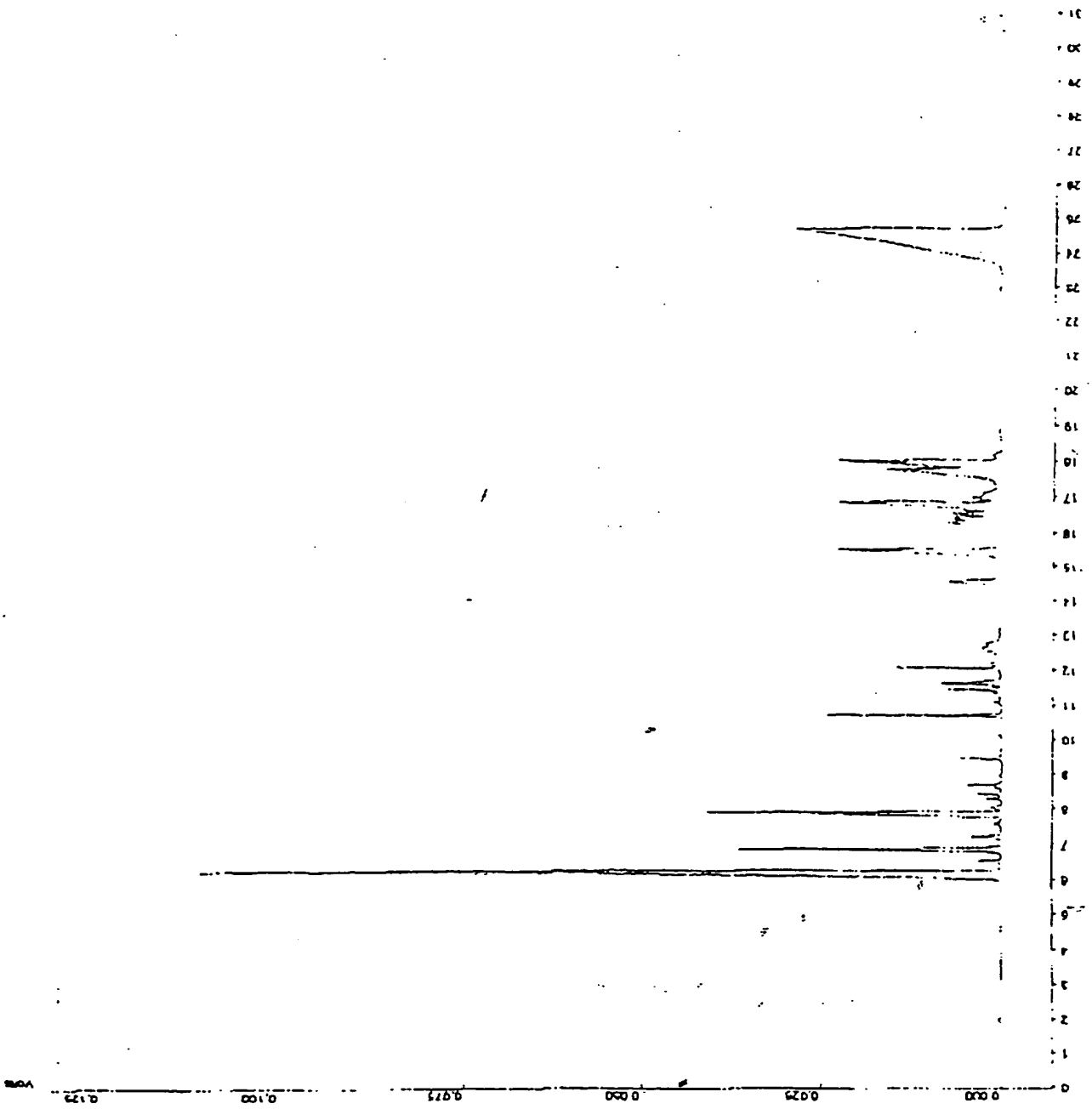


FIGURE 3: GC trace of young bark oil, polar column

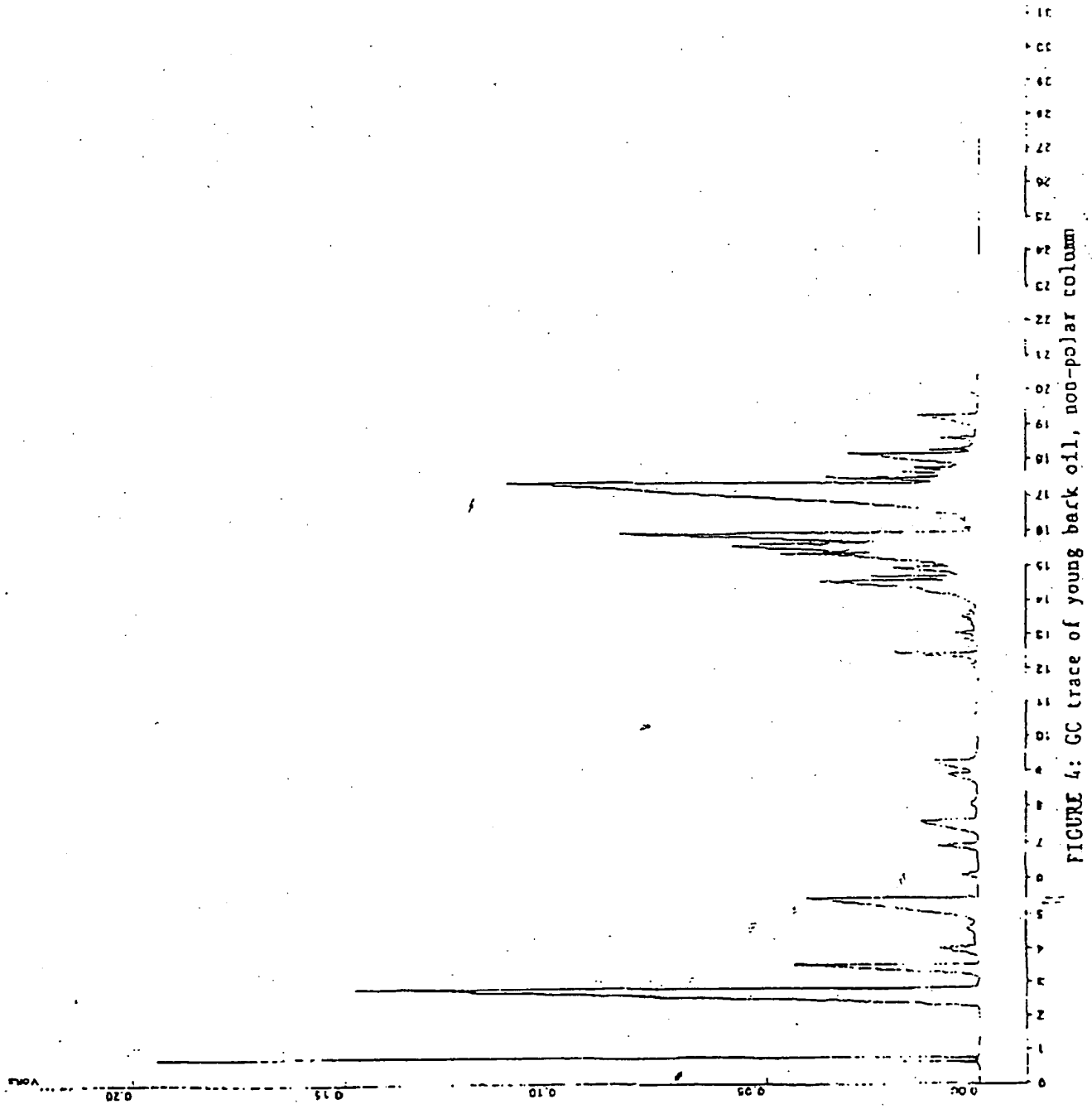


FIGURE 4: GC trace of young bark oil, non-polar column

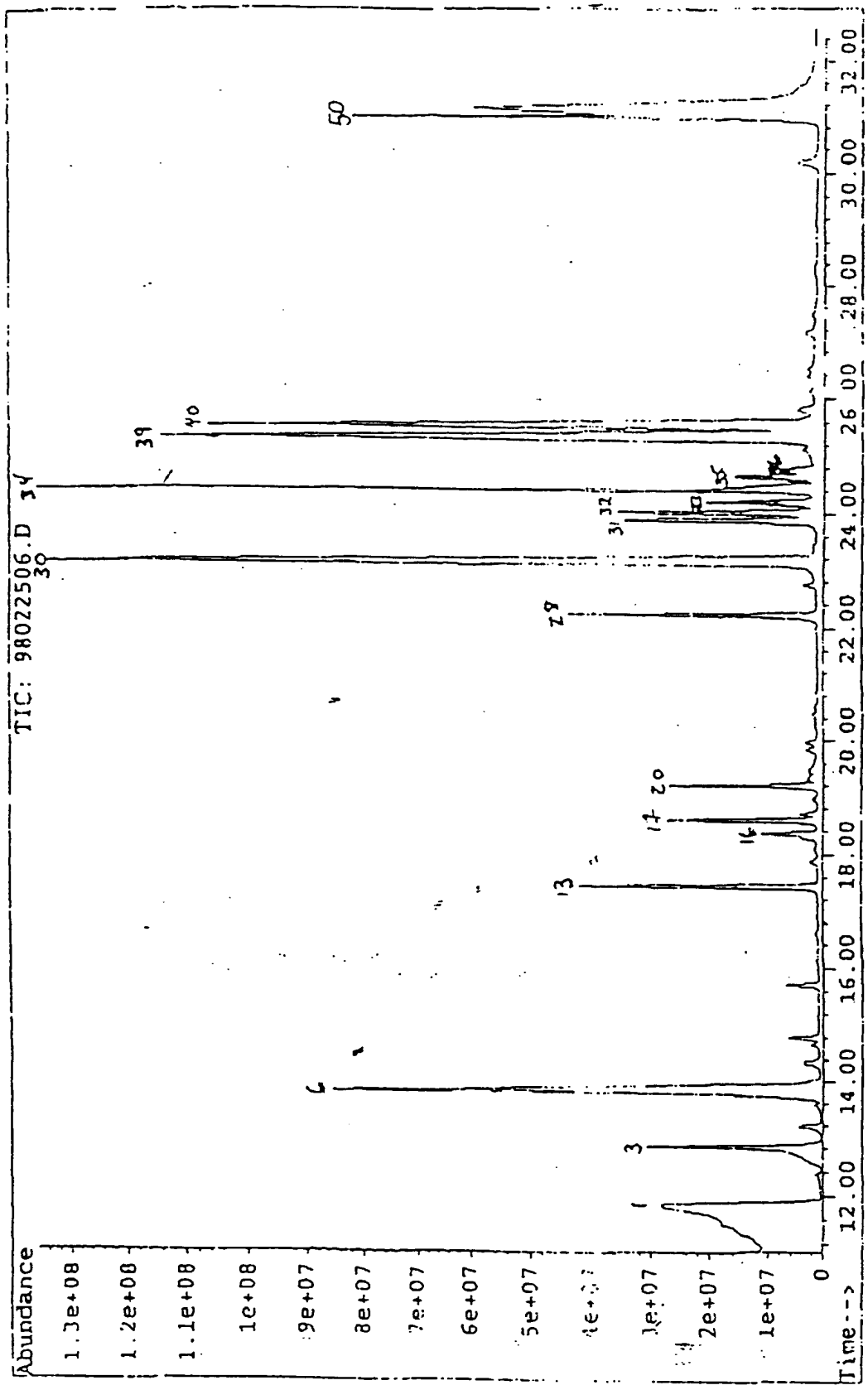


FIGURE 5: GC/MS trace of the young bark oil

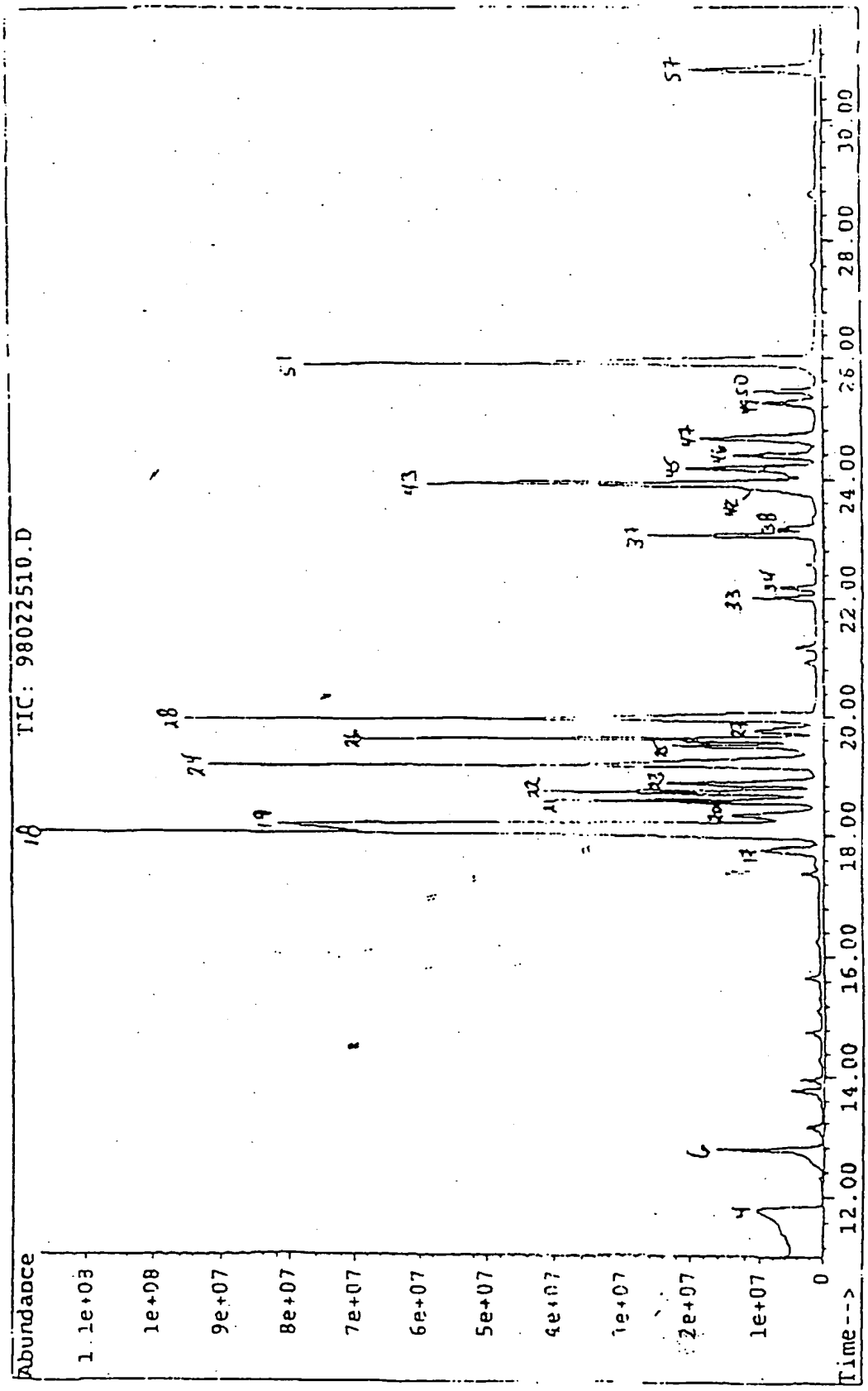
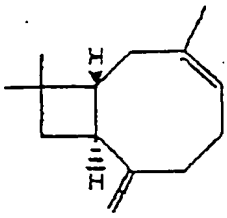


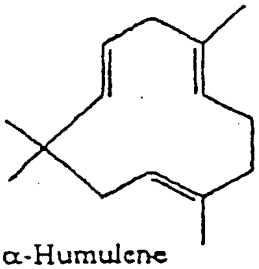
FIGURE 6: GC/MS trace of the old bark oil

Fig 7 Structures of Identified Compounds in Canelo oil

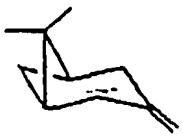
α -Pinene



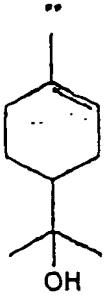
β -Caryophyllene



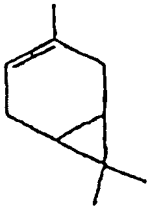
α-Humulene



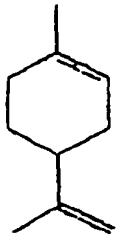
β -Pinene



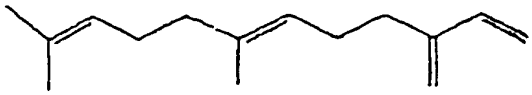
1-α-Terpineol



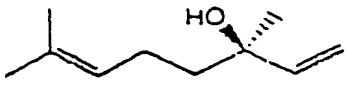
γ-3-Carene



Limonene

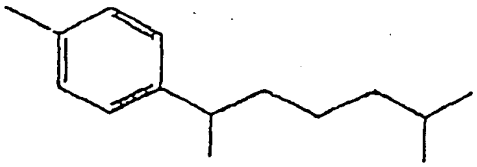


trans-β-Farnesene

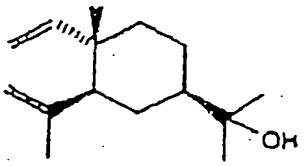


Linalool

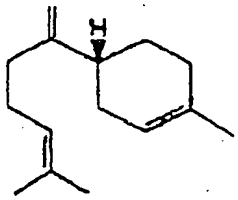
α · Beramotene



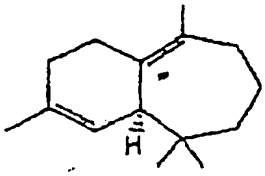
Benezene, 1-(1,5-dimethyl -4-hexenyl)-4-methyl



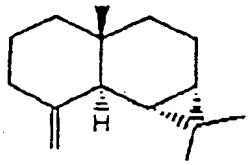
Elemol



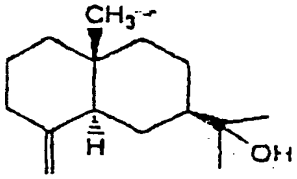
β - Bisabolene



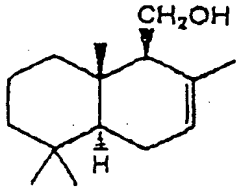
β - Himachalene



γ - Maaliene

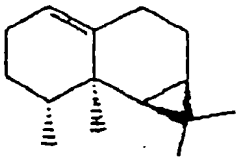


β - Eudesmol

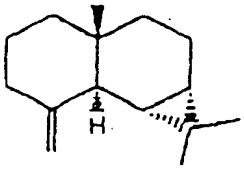


Driminol

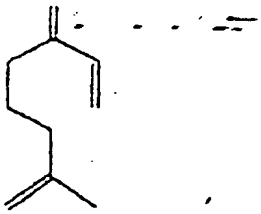
Farnesol



Calarene



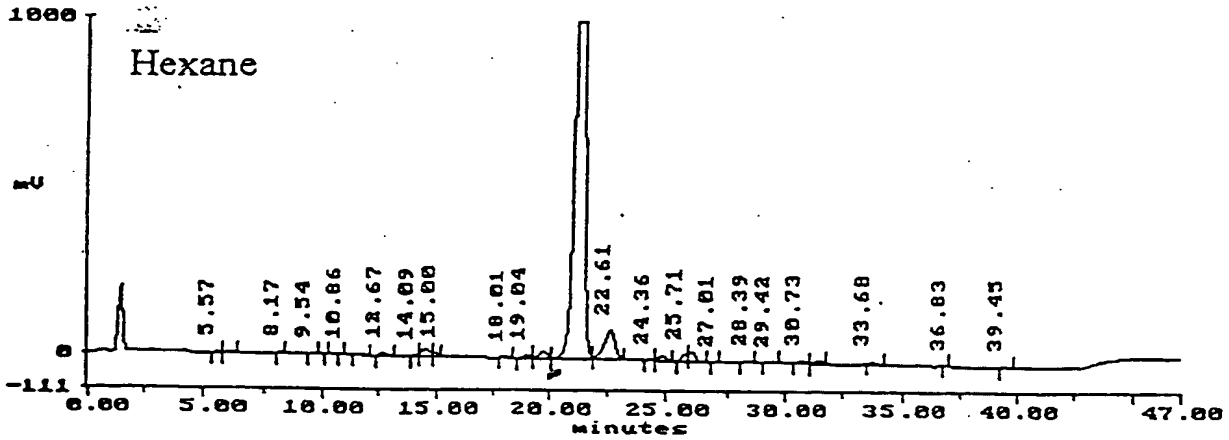
γ - Maaliene

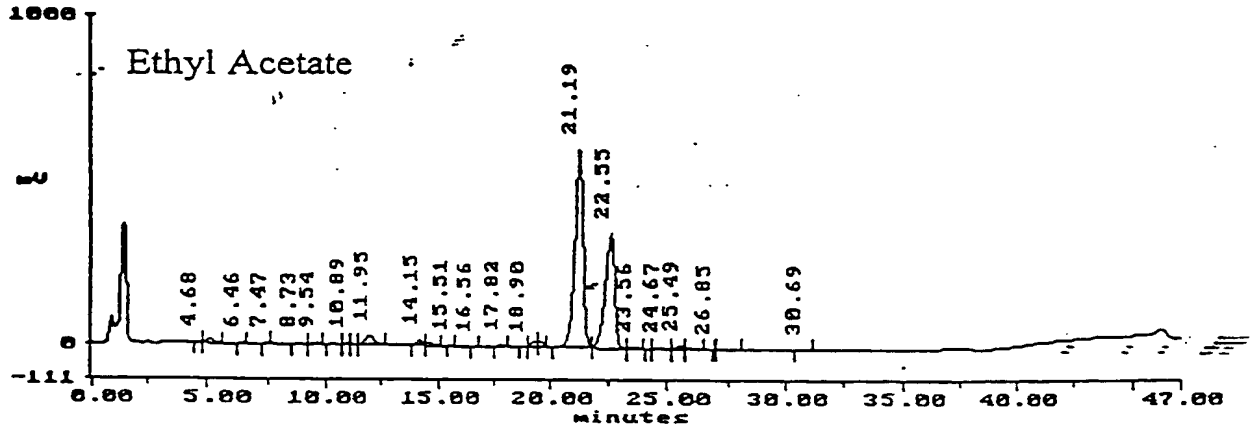


α - Myrcene

FIG. 8

LC/MS Analysis of Canelo Bark Extracts -old





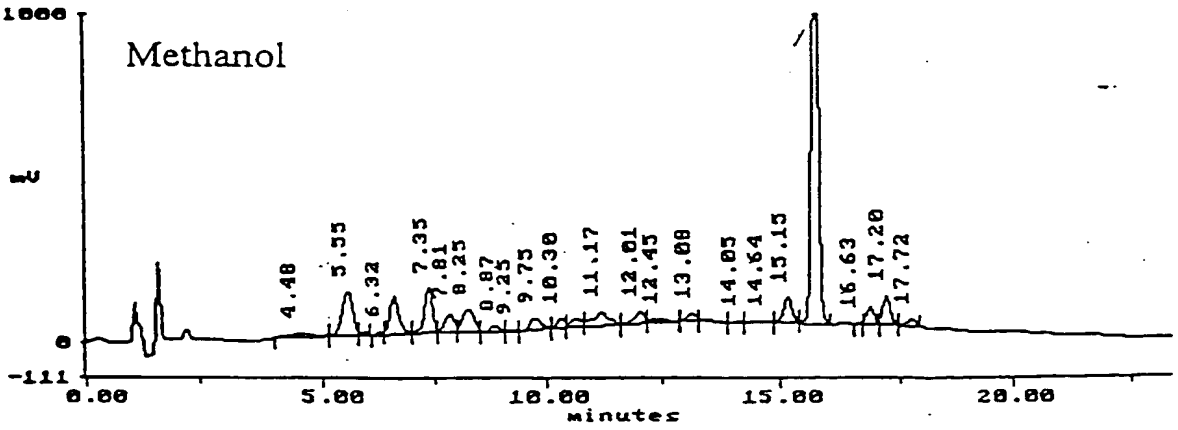
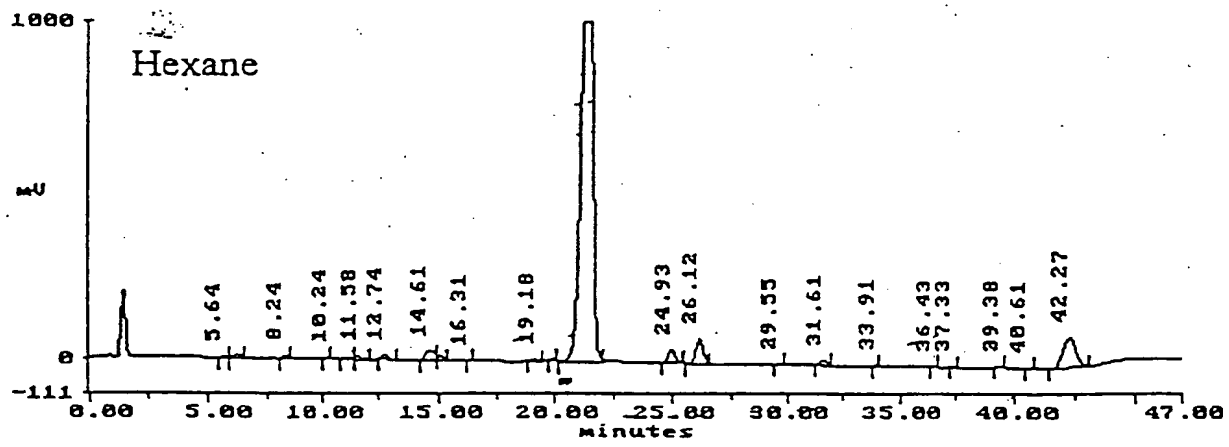
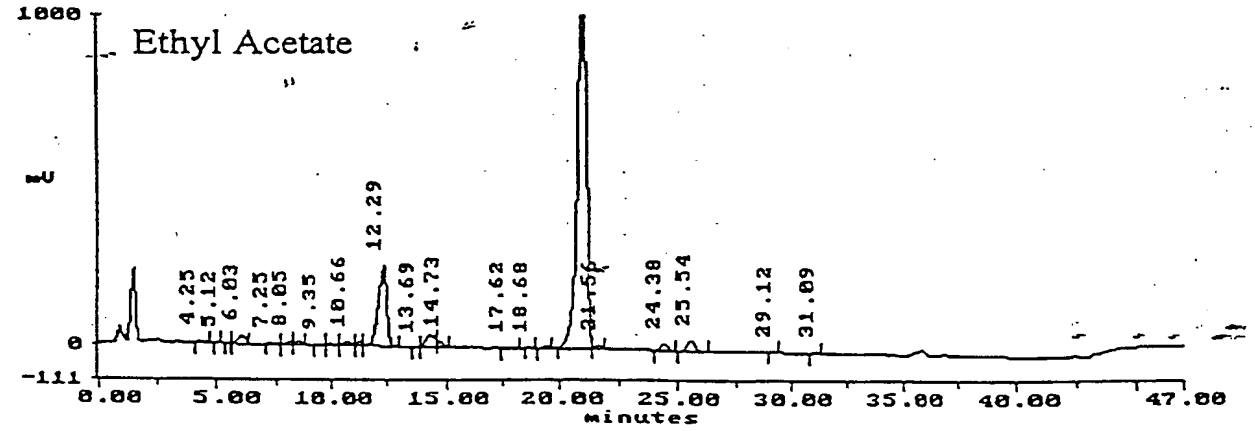


FIG-9

LC/MS Analysis of Canelo Bark Extracts -young





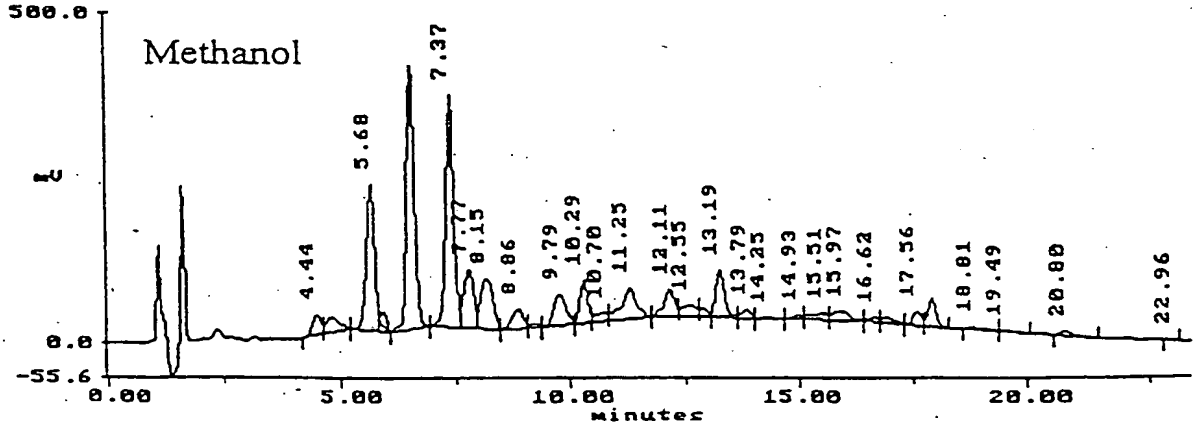
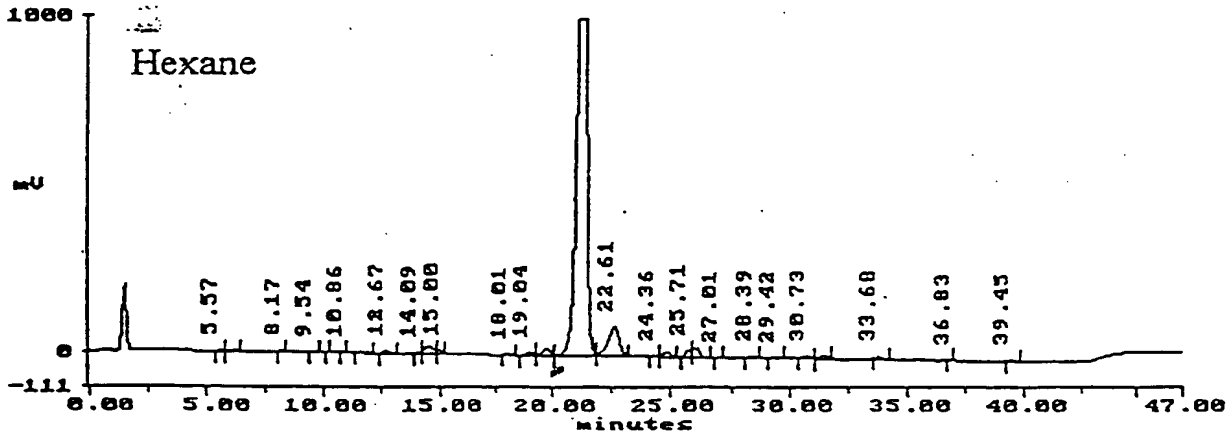
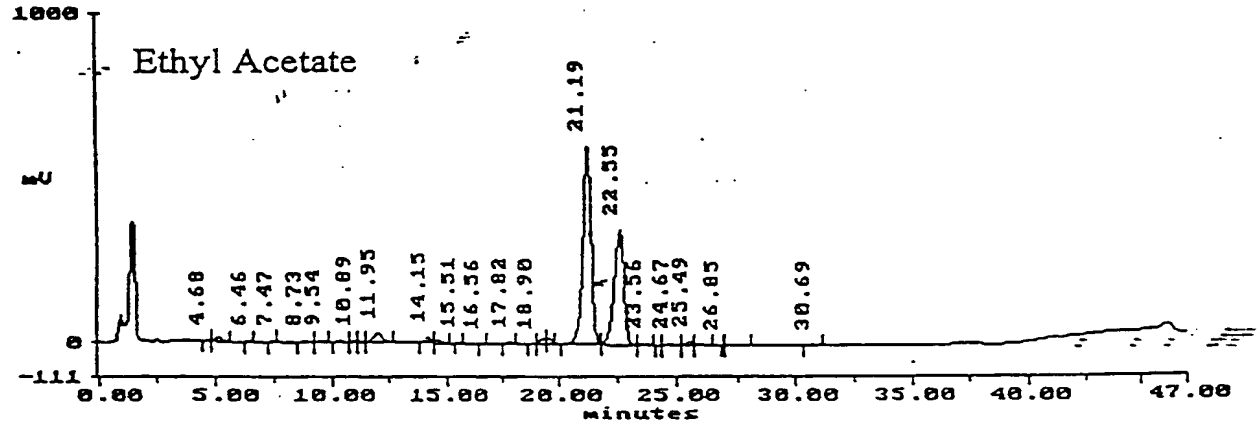
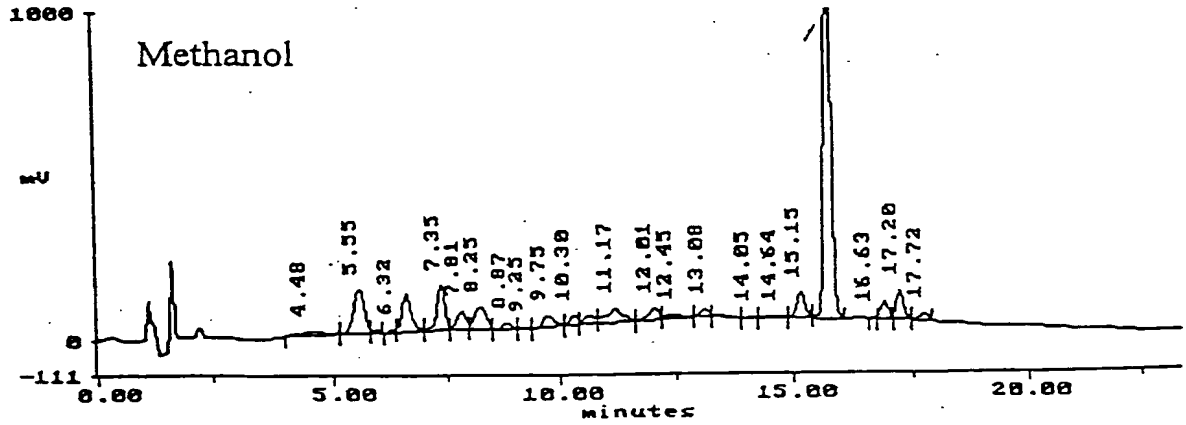


FIG 10

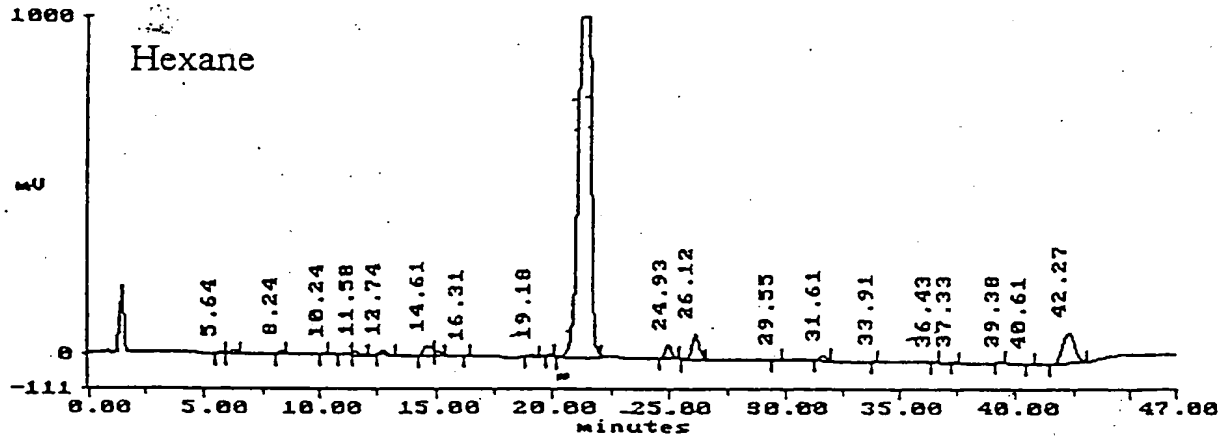
LC/MS Analysis of Canelo Bark Extracts -old

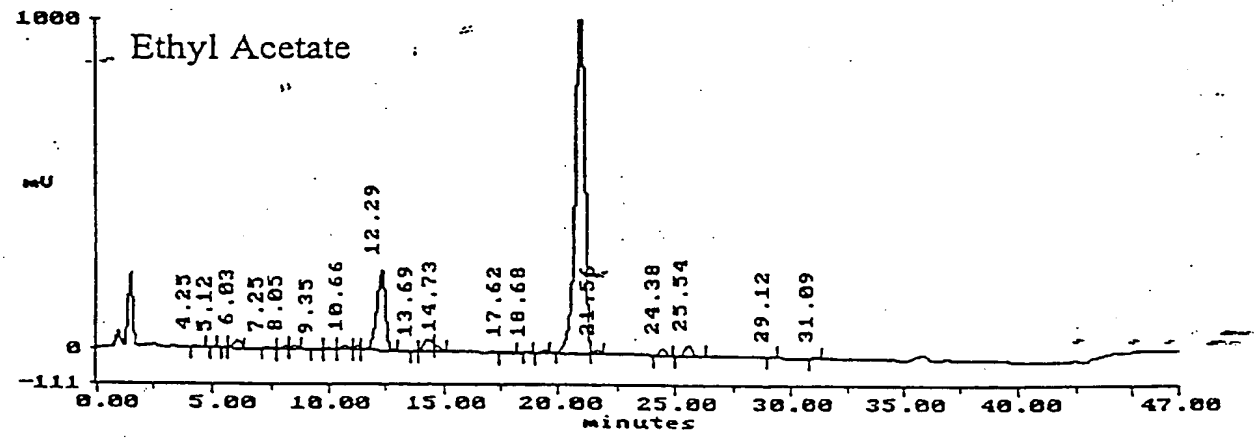


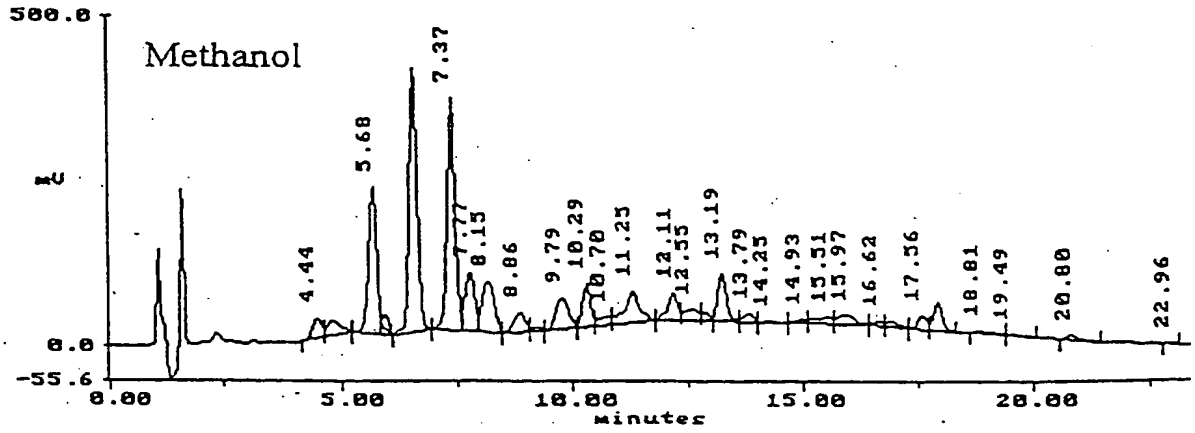




LC/MS Analysis of Canelo Bark Extracts -young







INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/27646

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) : A61K 35/78, 7/00; A01N 25/00, 25/34
US CL : 424/195.1; 424/400,403, 404, 405, 411
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 424/195.1; 424/400,403, 404, 405, 411

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
CAPLUS, MEDLINE, USPATFULL, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X - Y - A	EL SAYAH et al. Action of the extract of Drymis winteri on contraction induced by inflammatory mediators, compound 48/80 and ovalbumin of the guinea pig trachea in vitro. Gen. Pharmacol. 1997, Vol. 25, No. 5, pages 699-704. see entire document.	1 --- 3, 4, 6 --- 2, 5, 7
X - Y - A	TRATSK et al. Anti-allergic effects and edema inhibition caused by the extract of Drymis winteri. Inflammation Res. 1997, Vol. 46, No. 12, pages 509-514, see entire document.	1 --- 3, 4, 6 --- 2, 5, 7

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 07 DECEMBER 2000	Date of mailing of the international search report 16 JAN 2001
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer LAKSHMI S. CHANNAVAJJALA Telephone No. (703) 308-0196

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